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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,526	03/17/2004	Yung-Hsin Chen	3313-1136P	2292
2292	7590	02/22/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			ASSAF, FAYEZ G	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/801,526

Applicant(s)

CHEN ET AL.

Examiner

Fayez G. Assaf

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s), \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hobbs et al. (US 6,185,019 B1).

Hobbs discloses an apparatus for forming a nano grating device (line 1 of Col. 4), comprising: a light source, used to emit a first beam (12 of Fig. 1); a beam splitter, mounted on one side of the light source to split the first beam emitted from the light source into two second beams (14 of Fig. 1); two reflectors (16 and 18 of Fig. 1), mounted on the other side of the splitter opposite to the light source to respectively receive the second beams generated by the light splitter and then reflect a third beam; two light emitting modules (20 and 22 of Fig. 1), mounted on the other side of the reflectors opposite to the light splitter to respectively receive the third beams

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from the reflectors and generate a fourth beam; and a prism, having a flat surface and being mounted on the other side of the light emitting modules opposite to the reflectors, a photosensitive substrate (56 of Fig. 5) is attached onto the flat surface, and each of the fourth beam travels along the optical paths to reach the photosensitive substrate that is later exposed to form a grating structure (see Fig. 2a). Hobbs teaches a prism rather a hemi-sphere lens.

However, coupling the beams by means of semi-sphere lens is well known in such optical devices.

It would have been obvious, at the time the invention was made, to a person having ordinary skill in the art to utilize a semi-spherical lens instead of the prism in order to achieve a sharper interference pattern.

Regarding claim 2, Hobbs discloses the light source being a laser (line 62 of Col. 4).

Regarding claim 4, one of ordinary skill in the art appreciates, from reading the description of the spatial filters of Fig. 1, that Hobbs appears to teach the light emitting modules respectively including an amplifying object lens, a filtering pinhole and a lens, the third beams pass subsequently through the amplifying object lens, a filter pinhole and the lens to respectively form a fourth beam.

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Regarding claim 5, the device as modified teaches the two light emitting modules being symmetrically mounted at either sides of the hemi-sphere lens to allow the fourth beams to travel the same optical paths and then project on the photosensitive substrate (see Fig. 1).

Regarding claim 7, Hobbs discloses a movable platform (x-y translation stage of Fig. 10) to move the photosensitive substrate.

Regarding claim 3, Hobbs does not disclose the beam splitter being an optical fiber. However, such optical splitters are well known.

It would have been obvious, at the time the invention was made, to a person having ordinary skill in the art to utilize a fiber splitter because it is light weight and inexpensive.

#### ***Allowable Subject Matter***

Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 6 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest rotating and exposing the photosensitive substrate to form

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another grating structure crossing the grating structure that constructs a filter as set forth in the claimed combination.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gale et al. (US 2004/0032667 A1)

Saimi et al. (US 2003/0169671 A1)

Ueyanagi (US 6,687,196)

Bischoff (US 2004/0239954 A1)

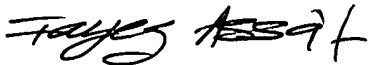
### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fayez G. Assaf whose telephone number is (571) 272-2307. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Fayez G. Assaf  
Primary Examiner  
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2/16/05